Abstract

A semiconductor device with a lightly doped drain and a method of manufacturing the same are provide. The method includes the step of providing a semiconductor substrate having a first area and a second area. A gate dielectric layer and a conductive layer are subsequently formed on the semiconductor substrate. The conductive layer is then selectively removed so that a first gate electrode is formed on the gate dielectric layer corresponding to the first area, and a portion of remains of the conductive layer substantially overlies the second area. A first impurity of first conduction type is then doped in the first area. A spacer is formed on a sidewall of the first gate electrode. A second impurity of first conduction type is doped in the first area to form a thin film transistor of first conduction type. A patterned mask layer defining a second gate electrode of the conductive layer corresponding to the second area is formed over the semiconductor substrate. A portion of the conductive layer is removed to form the second gate electrode on the gate dielectric layer corresponding to the second area. Then, an impurity of second conduction type is doped in the second area to form a thin film transistor of second conduction type.